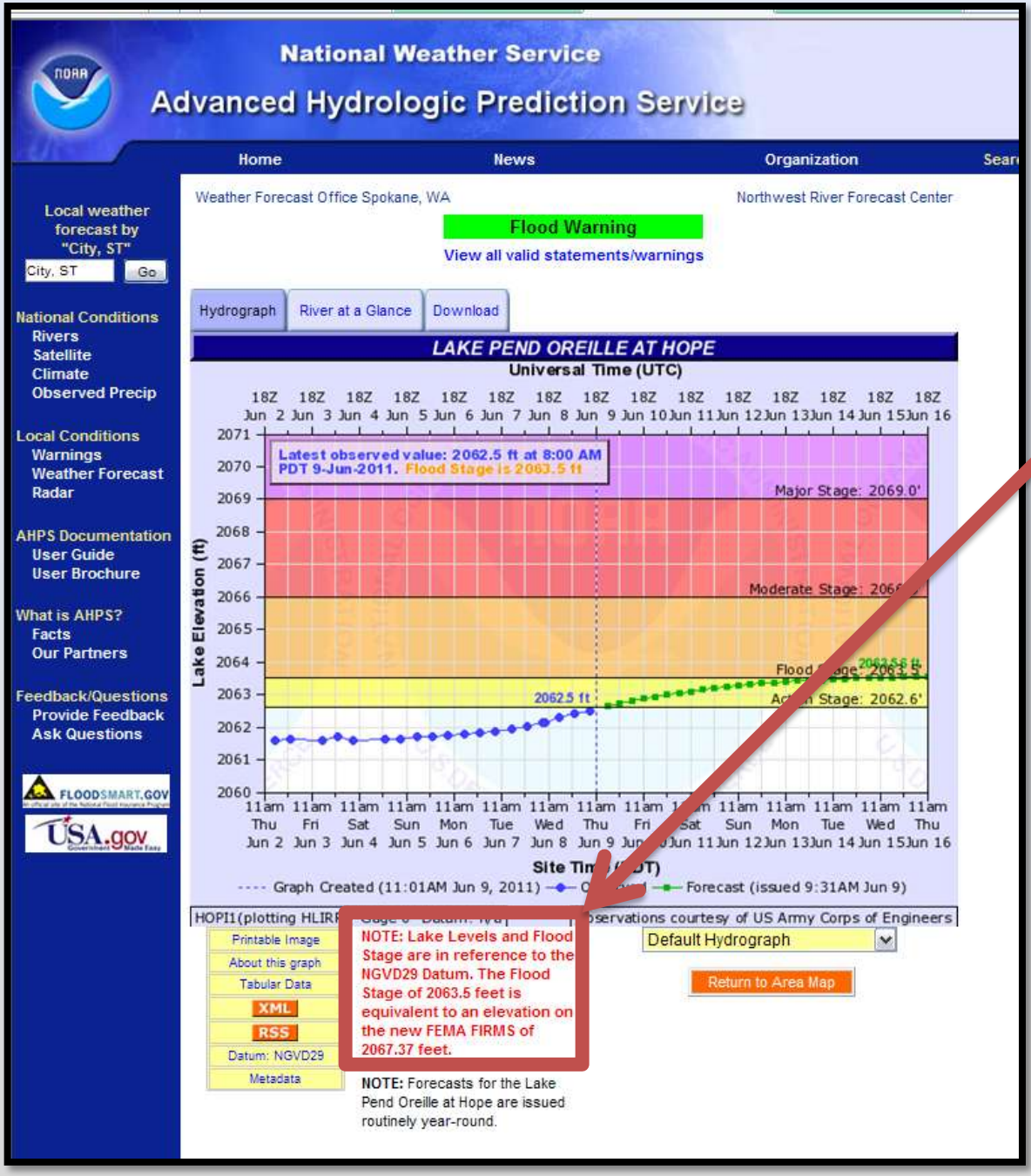


For those of you who have wondered what this new note means under the Lake Pend Oreille hydrograph, this document will answer some of your questions.

Who Should Read This?

Those with property or interests on Lake Pend Oreille who have been looking at the base flood elevations on the new FEMA Flood Insurance Rate Maps (FIRMs) issued in 2009. **Is this you? Then read on!** If this does not apply to you, then disregard any reference to NGVD29 or NAVD88 and know that the Lake Pend Oreille flood stage and reported lake levels are the same as they have always been.

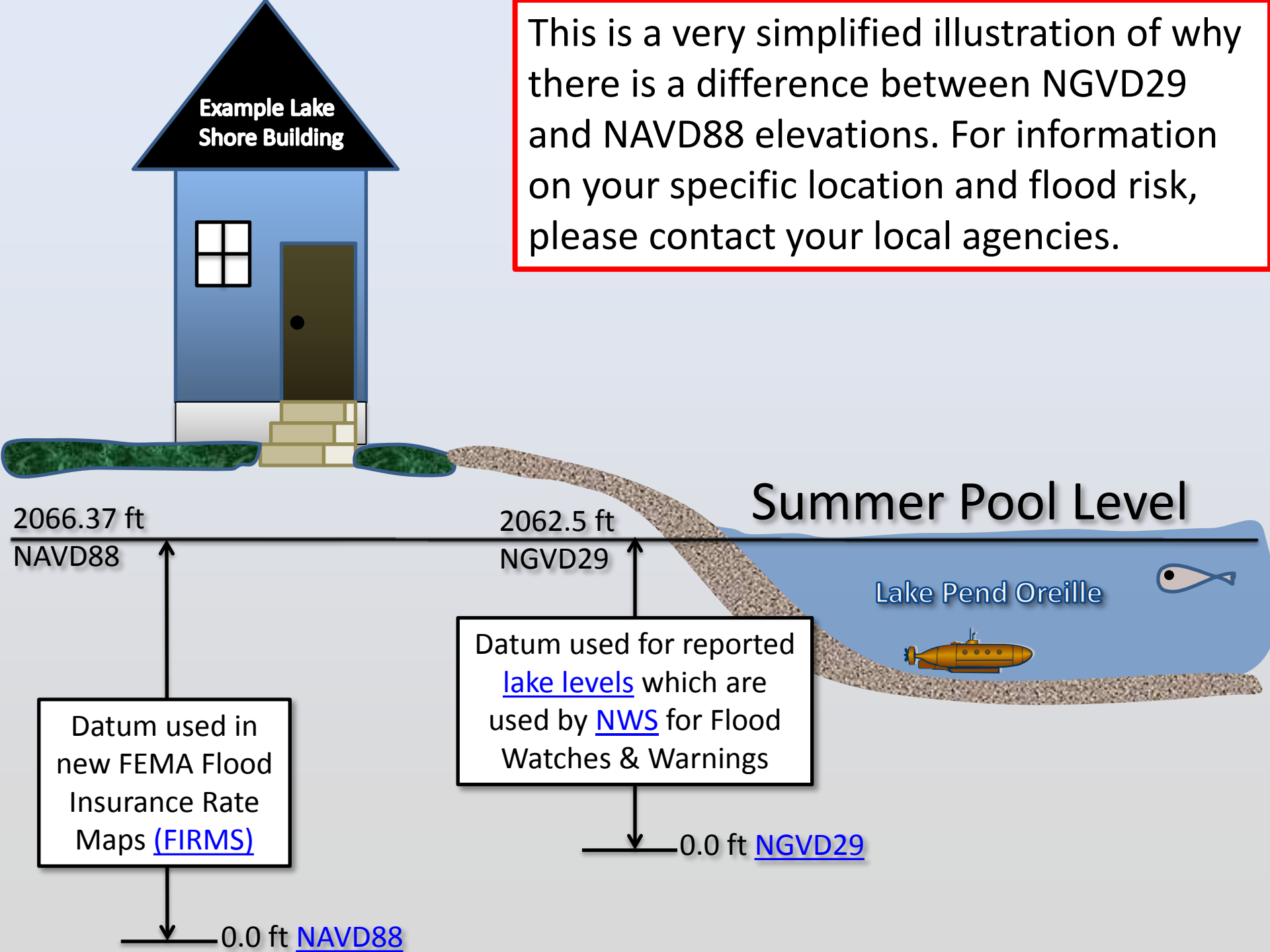
Why Should I Read This?

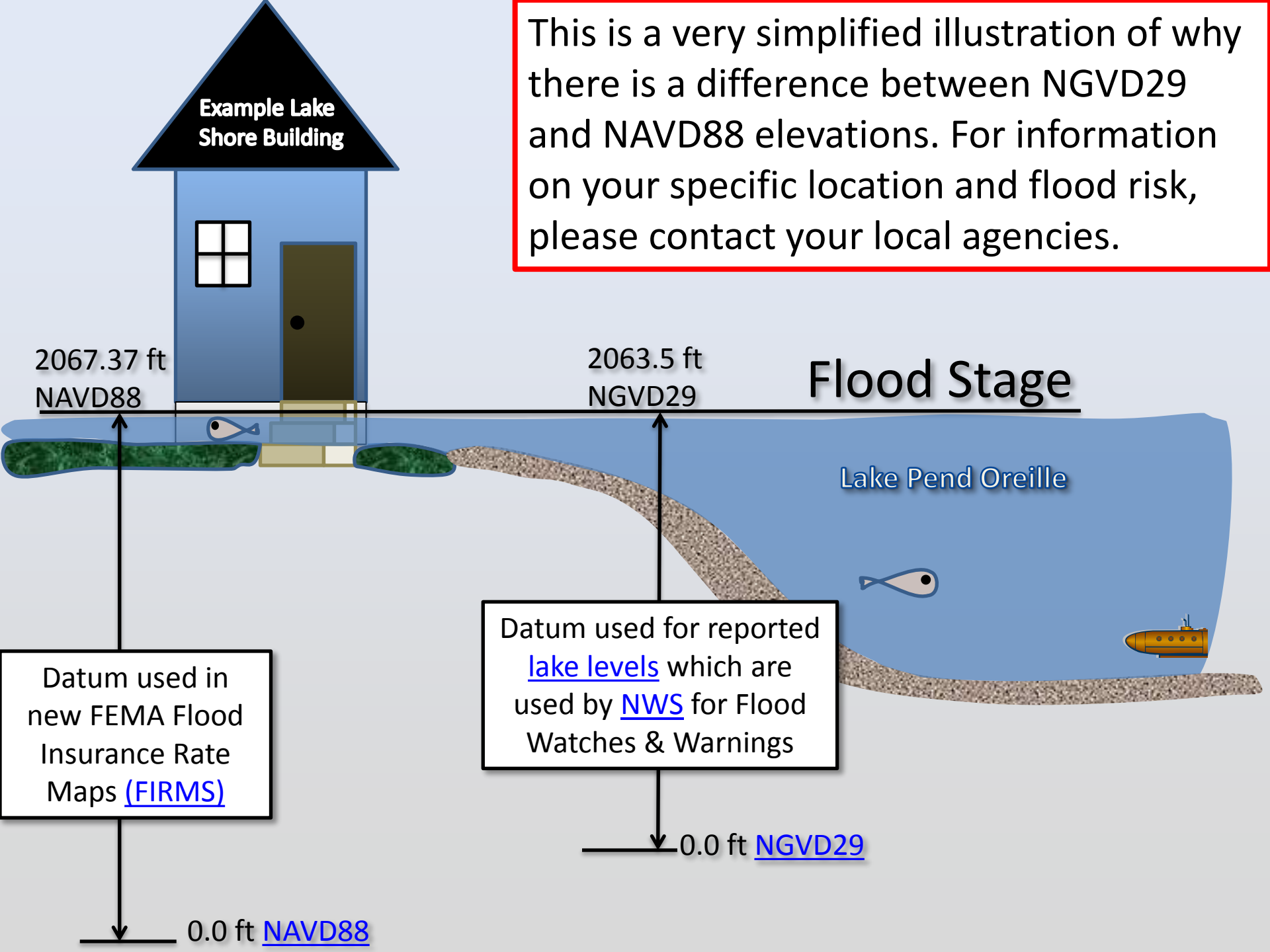
The elevations reported by the Lake Pend Oreille gage at Hope are used by the National Weather Service (NWS) for lake level forecasts, flood stage, and flood watches/warnings. However, lake levels reported by the Hope gage are measured from a different vertical datum than the base flood elevations displayed on the new FEMA FIRMs issued in 2009. The following information is an attempt to help explain the differences in a simplified manner. Please contact me if you have questions about this presentation Katherine.rowden@noaa.gov

For information on the FIRM for your area, contact your local planning agency.

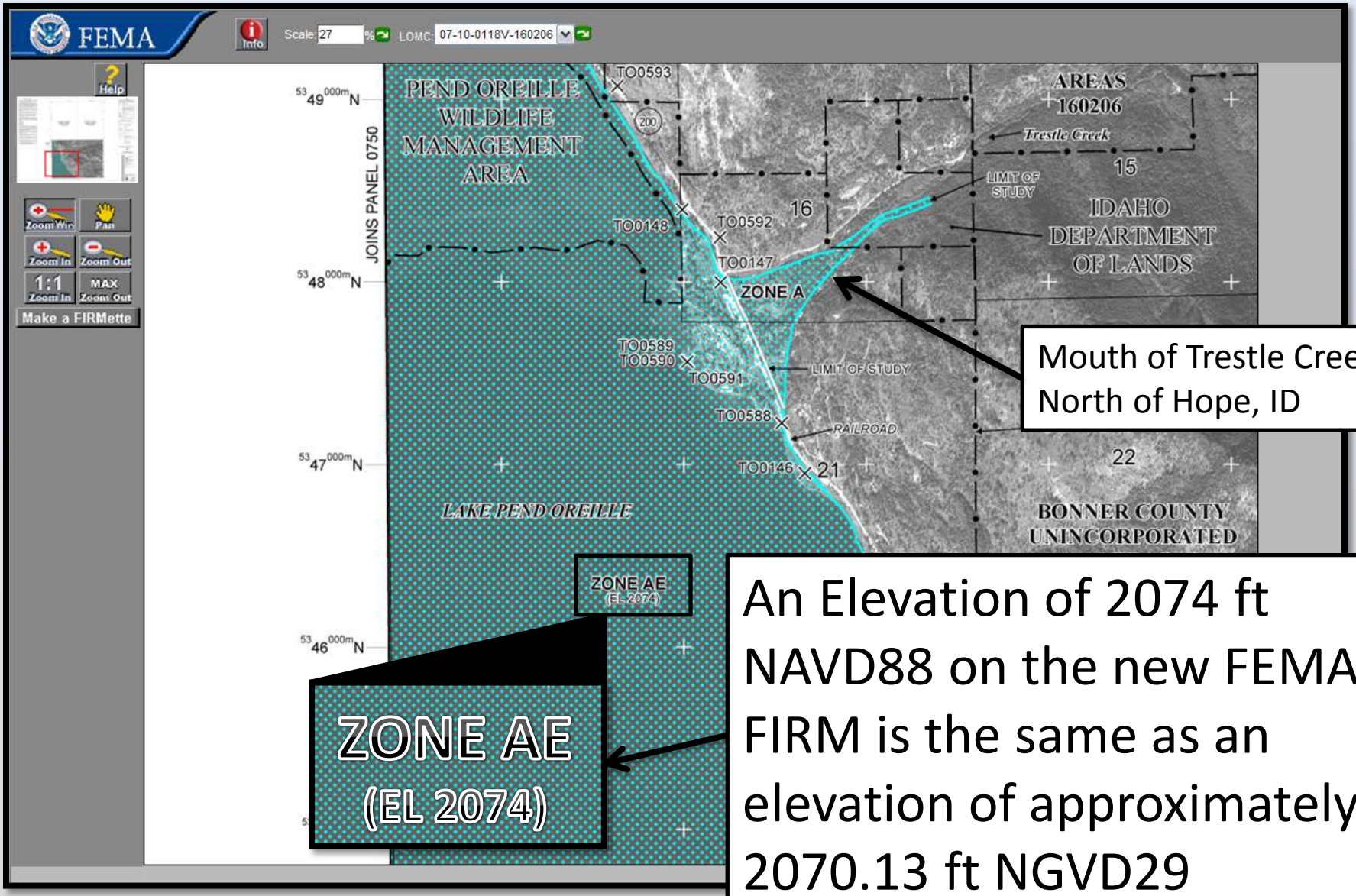
There are links to various websites embedded in the PDF that will take you to sites that have more information on these topics. The FAQs at the end explain the difference between NGVD29 and NAVD88.

This is a very simplified illustration of why there is a difference between NGVD29 and NAVD88 elevations. For information on your specific location and flood risk, please contact your local agencies.




This is a very simplified illustration of why there is a difference between NGVD29 and NAVD88 elevations. For information on your specific location and flood risk, please contact your local agencies.
Example Lake Shore Building
2067.37 ft NAVD88
2063.5 ft NGVD29
Flood Stage
Lake Pend Oreille
Datum used in new FEMA Flood Insurance Rate Maps (FIRMS)
Datum used for reported lake levels which are used by NWS for Flood Watches & Warnings
0.0 ft NGVD29
0.0 ft NAVD88

Example FEMA FIRMette on Lake Pend Oreille



Mouth of Trestle Creek
North of Hope, ID

An Elevation of 2074 ft NAVD88 on the new FEMA FIRM is the same as an elevation of approximately 2070.13 ft NGVD29

FAQs

Why are there two different measurements of elevation?

When the Lake Pend Oreille gage at Hope was initially installed many decades ago, the vertical datum in use at the time was the National Geodetic Vertical Datum of 1929 (NGVD29), commonly called the "Sea Level Datum of 1929." The Official Flood Stage and Lake Level Forecasts used by the National Weather Service are based on the lake levels reported by this gage. All flood impacts reported by the NWS are also referenced to NGVD29.

When FEMA updated the Flood Insurance Rate Maps for Bonner & Kootenai Counties in 2009, they used the newer and more accurate vertical datum: the North American Vertical Datum of 1988 (NAVD88). Due to changes in technology and scientific accuracy, there are differences between the two datums, which vary depending on where you are in the U.S.

For more information on the two different datums visit http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88

FAQs

How do I convert from one datum to the other?

To convert an elevation based on NGVD29 to NAVD88, you would add approximately 3.87ft ±, depending on your exact location on Lake Pend Oreille.

To convert an elevation based on NAVD88 to NGVD29, you would subtract approximately 3.87ft ±.

There is a tool on-line called VERTCON that allows one to convert between the two different datums if they have the latitude and longitude of the location of interest. This is a service provided by the National Geodetic Survey.

FAQs

How come the gage at Hope, the Flood Stage, and all the observed and forecasted levels weren't updated to NAVD88 when FEMA issued the new maps?

The Lake Pend Oreille gage at Hope has been recording lake levels in form or another since the 1920's. This 80+ year record of lake levels are referenced to the NGVD29 datum. This means that most references to, and local knowledge of, historic lake levels or historic flood elevations are using lake elevations measured in reference to NGVD29. A couple of examples of references to such NGVD29 elevations include the official flood stage for the lake and legal documents that include lake level information. Updating or amending all references to lake levels to use NAVD88 elevations will be a lengthy process.

USGS Lake Pend Oreille gage near Hope

US Army Corp Lake Pend Oreille gage at Hope

FAQs

Where can I learn more about the two different vertical datums?

Here are some resources on-line that have more information

These links do not constitute an endorsement by the NWS of any information, products or services on the sites.

Information provided by the State of New Hampshire

Information provided by the US Army Corps of Engineers

For questions on information contained in this presentation, please contact me at katherine.rowden@noaa.gov